

REMARKS

Claims 1-3, 5-6, 29-31, and 33-52 were presented for examination and were rejected.

The applicants have amended claim 1, in order to incorporate the limitation recited in claim 45, as well as to avoid protracted discussion of the issues. Accordingly, claim 45 has been canceled without prejudice, and the applicants reserve the right to re-add the canceled claim to this or another application. Support for the amendment to claim 1 can also be found in claim 22 of the original (PCT) application.

Claim 46 was dependent upon the now-canceled claim 45. Accordingly, claim 46 has been amended to make the claim dependent upon claim 39 instead.

In the previous (first) Office action mailed on 5/23/08, it appears that the Office only acknowledged having received some certified copies of the priority documents, but did not identify the certified copies that were not received. In the current (second) Office action, nothing about priority is acknowledged at all. ***The applicants request that the Office confirm that it has, in fact, received copies of both priority documents (i.e., GB 0315714.6 and PCT/GB2004/002216).***

The applicants respectfully request reconsideration in light of the amendments and the following comments.

35 U.S.C. 103 Rejection of Claims 1-3, 5, 6, 29-31, 33-37, 39-41, 43, 45, 46, and 50-52

Claim 1-3, 5, 6, 29-31, 33-37, 39-41, 43, 45, 46, and 50-52 have been rejected under 35 U.S.C. 103 as being unpatentable over Sawyer, U.S. Patent 5,108,417 (hereinafter "Sawyer"). The applicants respectfully traverse the rejection.

Claim 1, as amended, recites:

1. An internal formation for a conduit, the formation comprising a longitudinally extending member adapted to extend along an inside surface of at least a portion of the length of the conduit, the longitudinally extending member having an asymmetric profile in a direction transverse of the longitudinal axis of the member, wherein a first surface of the longitudinally extending member is at least partially directed towards an inlet of the conduit and a second surface of the longitudinally extending member is at least partially directed towards the outlet of the conduit and wherein the angle that the first surface subtends with a diameter of the conduit extending through a portion of the profile of the longitudinally extending member closest to the centre of the conduit is less than 20°, **and wherein the internal formation effects spiral flow of a fluid flowing through the conduit.**

(emphasis added)

Sawyer neither teaches nor suggests, alone or in combination with the other references, what claim 1 recites — namely that the international effects spiral flow of the fluid flowing through the conduit.

It is clear that from Sawyer, it would not have been obvious to make the internal formation such that it would effect spiral flow of a fluid flowing through the conduit. On the contrary, Sawyer teaches exactly the opposite. Referring to Figure 1 of Sawyer, the patent discloses stent 100 which has an inner surface "shaped in the form of an air foil" (see column 4, lines 3 and 4 of Sawyer). Figures 2 and 3 of Sawyer show an exploded view of the surface of the stent in which each segment of the helix of the stent can be seen. As is stated in column 4, lines 29 to 31 of Sawyer, the blood flows through the stent in the direction of arrow A from the forward end to the rearward end of the stent. It is also stated in column 4, lines 26 to 29 that "as the fluid in the vessel passes over the stent, the air foil configuration increases the velocity of the blood flow therethrough in the same manner as air flows over the wing of an airplane." Therefore, it is clear that in Sawyer the blood flows linearly in the direction of the longitudinal axis of the stent and passes over successive segments of the helix of the inner surface of stent 100. There is no disclosure in Sawyer of the blood flow having any component of radial velocity which would give rise to a helical flow. Therefore, the feature that "the internal formation effects spiral flow of a fluid flowing through the conduit" is not reported in Sawyer.

Furthermore, the purpose of the helically-shaped stent surface of Sawyer is specifically so that it is "in the form of an air foil" (see column 4, lines 3 and 4 of Sawyer) which "increases the velocity of the blood flow therethrough in the same manner as air flows over the wing of an airplane" (see column 4, lines 27 to 29 of Sawyer). Accordingly, the purpose of Sawyer is to increase the velocity of blood flow specifically by causing the blood to pass over successive segments of the helical surface in the same manner as air flows over the wing of an airplane. Accordingly, it would be completely counterintuitive for a skilled person to adapt the stent of Sawyer in order to have the feature of effecting spiral flow of blood passing through the stent. On the face of it, spiral flow would be more likely to slow the flow of blood rather than increase the flow velocity.

On page 7 of the Office action, paragraph 16, it is stated that "Sawyer discloses a formation of the longitudinal extending member that affects the spiral flow of a fluid to decrease turbulence and increase velocity" and refers to column 4, lines 26 to 54 of Sawyer. However, as will be apparent from the above analysis of the Sawyer patent, this is

incorrect. Sawyer does not disclose this feature at all and certainly not in the passage that the Office has identified. Indeed, this passage in Sawyer discloses quite the contrary, namely that blood flows in the direction of the arrow A—that is, parallel to the longitudinal axis of the stent and over successive segments of the helical in a surface of a stent in order to increase the velocity of blood flow.

For these reasons, the applicants respectfully submit that the rejection of claim 1 is traversed.

Because claims 2-3, 5, 6, 29-31, 33-37, 39-41, 43, 46, and 50-52 depend on claim 1, the applicants respectfully submit that the rejection of them are also traversed. Note that claim 45 has been canceled.

35 U.S.C. 103 Rejection of Claims 1-3, 5, 6, 29-31, 33-50

Claim 1-3, 5, 6, 29-31, 33-50 have been rejected under 35 U.S.C. 103 as being unpatentable over Houston et al, EP 1254645A1 (hereinafter "Houston") in view of Wolowacz et al, US Patent No. 6,946,003 (hereinafter "Wolowacz"). The applicants respectfully traverse the rejection.

The Office action states at the top of page 10 that with respect to the 20° limitation that is recited in the claim, "discovering an optimum value of a result-effective variable involves only routine skill in the art." This statement is ludicrous, and the Office has apparently applied the case law incorrectly. After all, taking the Office's statement to its logical conclusion would appear to preclude the patenting of any selection invention. This is clearly not the case.

Irrespective of the limitation just discussed, although it is suggested in the Office action to combine the teachings of Houston and Wolowacz, the respective inventions lie in two different technical areas. As is explained in column 1, lines 3 to 7 of Houston, the invention concerns artificial or modified natural blood-flow tubing. In contrast, Wolowacz relates to a "flexible, elongate tape" that is part of replacement connective tissue (in column 1, line 65 to column 2, line 4 of Wolowacz). While it is acknowledged that both Houston and Wolowacz concern devices that may be surgically implanted, that, in itself, is a vast technical field of which the two documents concern entirely separate elements. As is stated in column 2, lines 5 to 7 of Wolowacz, components of the device "mimic the collagen bundles found in connective tissue, such as tendon." Clearly, this is entirely different from the qualities which are required for the "artificial or modified natural blood tubing" of Houston which will mimic blood vessels.

But even if the tape of Wolowacz were combined with the blood flow tubing of Houston, a skilled person would not arrive at the present invention. Wolowacz mentions that "elongate elements," which operate in conjunction with the tape, could have an irregular shape (see column 2, line 58 of the Wolowacz patent). It appears that the Office regards these components as being equivalent to the "internal formation" of claim 1 of the present application. However, it is notable that these "elongate elements" are "aligned along and independently translatable in the longitudinal direction of the tape" (see column 2, lines 3 and 4 of Wolowacz) and it is therefore not clear as to what element in Houston the elongate elements would correspond. Certainly, there is no particular reason why a skilled person would result in an internal formation of the type currently being claimed.

For these reasons, the applicants respectfully submit that the rejection of claim 1 is traversed.

Because claims 2-3, 5, 6, 29-31, 33-50 depend on claim 1, the applicants respectfully submit that the rejection of them are also traversed.

Request for Reconsideration Pursuant to 37 C.F.R. 1.111

Having responded to each and every ground for objection and rejection in the last Office action, applicants respectfully request reconsideration of the instant application pursuant to 37 CFR 1.111 and request that the Examiner allow all of the pending claims and pass the application to issue.

If there are remaining issues, the applicants respectfully request that Examiner telephone the applicants' attorney so that those issues can be resolved as quickly as possible.

Respectfully,
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